

# **The Use Of Shuttle Buses In Hajj To Transport Pilgrims: A Simulation Study**

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## **Summary**

Hajj is one of the world's largest mass movements, where over two million pilgrims converge every year at the same time to perform this religious duty. Traffic congestion during Nafrah, which is defined as the movement of pilgrims from Arafat to Muzdalifah, is one of the most severe problems in Hajj. A simulation model is developed for the shuttle bus traffic during Nafrah period. The model has religious, spatial, and time constraints. The performance measures that will be used for the model are evacuation time and average travel time. In addition, results of a preliminary model will be presented..

## **References:**

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